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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,938	02/14/2002	Steven L. Seed	0092-US-01	5330

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EXAMINER	
BILGRAMI, ASGHAR H	
ART UNIT	PAPER NUMBER
2443	

NOTIFICATION DATE	DELIVERY MODE
08/03/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@cpaglobal.com

Office Action Summary	Application No.	Applicant(s)	
	10/073,938	SEED ET AL.	
	Examiner	Art Unit	
	ASGHAR BILGRAMI	2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-12,14-18,20-25,27-34,36-40,42-47,49-55,57,58 and 66-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-12,14-18,20-25,27-34,36-40,42-47,49-55,57,58 and 66-84* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/12/2011,5/10/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 5/10/2011 and 4/12/2011are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims *1-3, 5-12, 14-18, 20-25, 27-34, 36-40, 42-47, 49-55, 57, 58, 66-84* are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176).

4. As per claims 1, 16, 23, 38 & 45 Jungck disclosed a method/System for managed object replication and delivery in a system comprising a network having one or more parent server sites (paragraphs.19) and one or more edge server sites distinct from said parent server sites(paragraph.25), the method comprising: (A) directing a request by a client for an object to an optimal edge server site in the network (paragraphs. 27, 35 & 63), and (B) if the edge server site does not have the requested

object, then said particular edge server site redirecting the client request to parent server site in the network distinct from the edge server site {request is redirected to the parent server that servers the object to the client } and wherein the requested object is served to the client from the server site other than the particular edge server site server {from which the requested content is served}. (paragraphs.56 & 57). However Jungck did not explicitly disclose (C) if the edge server site does not have the requested object, conditionally replicating a portion of the requested object to the edge server site from the parent server site in the network, wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity.

In the same field of endeavor Sim disclosed that if the edge server site does not have the requested object, conditionally replicating {{Sim discloses that the content is replicated to the nodes of the network based on popularity of the content therefore there is a presence of "dynamic measurement" which determines content's popularity}} portion of the requested object to the edge server site from the parent server site in the network (paragraph.138), wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds dynamic replication threshold (paragraphs.,47, 52, 138, 197, 199) {when it is measured that popularity of the requested object has exceeded the threshold set for an object to be considered popular only then that object is replicated}, said dynamic

replication threshold being based at least in part on at least one dynamic measure of capacity (Paragraphs. 230 and 236) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to make room for more popular and new content when the available storage is running low. Here multiple dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

5. As per claims 2, 24 & 46 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to said first server site comprises said particular edge server site redirecting the client request to a parent server site in the network (Jungck, paragraph.57).

6. As per claims 3, 25 & 47 Jungck-Sim disclosed the method of claim 1, wherein if that parent server site does not have the requested object, then recursively redirecting the request until a parent server site in the network having the requested object is reached, and then serving the requested object to the client from the parent server that has the requested object (Jungck, paragraph.57).

7. As per claims 5, 27 & 49 Jungck-Sim disclosed the method of claim 1, wherein directing a request by a client for an object to particular edge server site comprises directing the request by the client for an object to a best or optimal edge server site (Jungck, paragraph.63).

8. As per claims 6, 28 & 50 Jungck-Sim disclosed the method of claim 5, wherein a best or optimal edge server comprises an edge server site selected using at least one of a determination based on a best repeater selector, the likelihood of a copy of the requested object being available at the edge server site, and the bandwidth between the edge server site and the client (Jungck, paragraphs.63 & 71).

9. As per claims 7, 29 & 51 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the portion of the requested object to the particular edge server site comprises replicating the portion of the requested object to the particular edge server site from a parent server (Sim, paragraphs, 47 & 52).
It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on condition (I.E popularity) as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

10. As per claims 8, 9, 30, 31, 52 & 53 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating comprises: if the requested object is determined to be popular based on said dynamic measure of popularity, and if the requested object is unavailable on parent server sites in the network, then replicating the portion of the requested object to a parent server site in the network from an origin server site (Sim, paragraphs, 47 & 52).
It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a

dynamic popularity threshold as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

11. As per claims 10, 21, 32, 43& 54 Jungck-Sim disclosed the method of claim 1, wherein said dynamic measure of popularity of the requested object is popular (Sim paragraph.47 & 138) is determined using at least a request rate for the requested object (Jungck, paragraph.58).

12. As per claims 11, 12, 17, 18, 33, 34, 39, 40& 55 Jungck-Sim disclosed the system of claim 45, wherein at least one of the plurality of edge servers sites and the plurality of parent server sites deletes at least some part of an object if the object is no longer popular, as determined based on said dynamic measure of popularity of the requested object (Sim, paragraphs, 47 & 230).
It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein at least one of the plurality of edge servers sites and the plurality of parent server sites deletes at least some part of an object if the object is no longer popular, as determined based on said dynamic measure of popularity of the requested object as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system

more scalable and efficient resulting in adequate storage space for providing most relevant & popular content to the requester making the system more robust and efficient.

As per claims 14, 20, 36, 42 & 57 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the portion of the requested object on said particular edge server site comprises: replicating the portion of the requested object when said dynamic measure of popularity of the requested object is great than the dynamic replication threshold and there is enough storage on said particular edge server site to replicate the portion of the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting at least some part of the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the portion of the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the portion of the requested object on said particular edge server site if there is enough storage on said particular edge server site (Sim, paragraphs, 47 and 230) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to

make room for more popular and new content when the available storage is running low. Here multiple dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein said step of conditionally replicating the portion of the requested object on said particular edge server site comprises: replicating the portion of the requested object when said dynamic measure of popularity of the requested object is great than a dynamic threshold popularity and there is enough storage on said particular edge server site to replicate the portion of the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting at least some part of the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the portion of the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the portion of the requested object on said

particular edge server site if there is enough storage on said particular edge server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable and efficient resulting in adequate storage space for most relevant object based on its popularity and thus providing most relevant & popular content to the requester making the system more robust and efficient.

13. As per claims 15, 22, 37, 44& 58 Jungck-Sim disclosed the method of claim 1, wherein the step of serving the requested object is performed separately from the step of conditionally replicating the portion of the requested object (Jungck, paragraphs.63 & 71).

14. As per claim 66 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is a peer server site of the particular edge server site (Jungck, paragraph.61)

15. As per claim 67 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is the first server site (Jungck, paragraph.61).

16. As per claim 68 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is a peer of the first server site (Jungck, paragraph.61).

17. As per claim 69 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a peer server site of the particular edge server site (Sim, paragraphs. 47 & 52).
It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a peer server site of the particular edge server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

18. As per claim 70 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a server site (Sim, paragraphs. 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

19. As per claims 71, 74, 76, 78 and 80 Jungck-Sim disclosed the method of claim 1 wherein the dynamic measure of popularity of the requested object is based at least in part on one or more of: (a) a local dynamic measure of popularity of the object Sim, paragraph.197); and (b) information regarding the popularity of the object on other servers (Sim, paragraph.244).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the dynamic measure of popularity of the requested object is based at least in part on one or more of: (a) a local dynamic measure of popularity of the object Sim, paragraph.197); and (b) information regarding the popularity of the object on other servers as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and

providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

20. As per claims 72, 73, 75, 77, 79 and 81 Jungck-Sim disclosed the method of claim 1 wherein the requested object comprises chunks, including initial chunks and remaining chunks, and wherein the portion of the requested object comprises only initial chunks of the object (Sim, Paragraph.138).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the requested object comprises chunks, including initial chunks and remaining chunks, and wherein the portion of the requested object comprises only initial chunks of the object as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable and stable resulting in efficient management of the traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

21. As per claims 82, 83 and 84 Jungck-Sim disclosed a method as recited in claim 1, wherein the at least one dynamic measure of capacity represents available capacity on the particular edge server (Sim, Paragraphs, 47 and 230) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to make room for more popular and new content when the available storage is running low. Here multiple

dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

Response to Arguments

22. Applicant's arguments filed 6/28/2011 have been fully considered but they are not persuasive.

23. Applicant argued that prior art failed to disclose the limitation "wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity". Applicant agued that with respect to the cited limitation that none of the prior arts disclosed the "dynamic measure of popularity of content with dynamic replication threshold".

As to applicant's argument examiner will make an attempt to show how Sims discloses the dynamic measure of popularity along with dynamic replication threshold. Sim

disclosed replicating a requested content (object) on the network nodes (servers) to be viewed the users are based on a number of factors to include content's (object's) popularity.

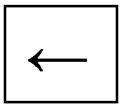
See Paragraph.47

> [0047] As mentioned above, one embodiment of the invention breaks the large payload files into multiple portions. This may be accomplished by selectively partitioning the large payload file into blocks that are replicated and distributed to a plurality of distribution stations (a.k.a. nodes) at the edge of the network. Each distribution station is configured to determine how much of the content to save locally, based on information such as usage, popularity, etc.

Examiner notes that "popularity" of content (object) is dynamic in nature and it depends upon the demand of content (object) as to how many requests are sent out for a particular content (object) among a number of other contents (objects). In other words content popularity is demand driven which makes the content (object) popular or unpopular/less popular.

Now lets us look at how Sim disclosed the "dynamic replication threshold" in its disclosure. Sim mentioned "popularity index" of a file or content that is adjustable (dynamically) based upon popularity of the file or content and it is adjusted through storage management agent component which removes the less popular content (object) to make room for the more popular (I.E to replicate the more requested/popular) content (Object) in paragraphs 197 and 199.

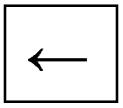
> **[0197]** The Storage Management Subsystem **2070** includes a Storage Management Agent as its primary component. The Storage Management Agent 1) monitors the total local storage availability and the storage availability of a content provider; 2) adjusts the "popularity" index of a file; 3) determines a storage safety threshold for each content provider; 4) schedules content pruning; 5) computes pruning amount; 6) removes the least likely to be used blocks of a file; and 7) reports storage usage information and shortage warnings to Content Management servers.



> **[0199]** The Storage Management Agent uses the VFCS Server history log data and data in the File Metadata Database to determine a reasonable storage safety threshold, adjusts the "popularity" index of a file, and identifies the least likely to be used blocks. A storage safety threshold is the minimum amount of free storage each content provider must reserve at all times. Based on storage availability and the DS activities, the Storage Management Agent determines the total amount of data to be pruned for each content provider and schedules the deletion of the least likely to be used blocks.

Additionally with respect to "dynamic popularity threshold" Sims in paragraph 236 in Table 3 has disclosed file's popularity level (threshold) is updated by the storage management subsystem.

> remove the least likely to be used blocks. The Storage Management Subsystem also updates the file's popularity level. The Storage Management Subsystem has multiple pruning engines that it can apply based on the storage and network traffic situation.



Therefore Sims discloses "dynamic popularity threshold" as disclosed in claim.

24. Applicant again alleged that the combination of Junck and Sim fails to establish a prima face case of obviousness with respect to any claim of the present application.

As to applicant's argument **examiner advises the applicant focus on the similarities of the both prior arts** rather then looking at them separately in vacuum. Examiner has clearly defined both prior arts and they both deal with replication of the content in a network. Examiner has clearly pointed out that Jungck did not specifically considered the popularity aspect when replicating content on edge servers therefore prior art Sim was introduced to fill that vacuum with appropriate motivation to combine the two references to anticipate applicant's claimed invention . Therefore the 35 U.S.C. 103(a) rejection made in light of Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176) is appropriate and clearly anticipates the invention as claimed.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASGHAR BILGRAMI whose telephone number is (571)272-3907. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L.M. Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David E. England/
Primary Examiner, Art Unit 2443

/Asghar Bilgrami/
Examiner, Art Unit 2443